Amendments to the Specification

Please amend the paragraph beginning at page 1, line 6 to read as follows.

The present invention relates to a method for high speed rerouting in a multi protocol label switching network (MPLS), and in particular to a method for high speed rerouting in a MPLS switching network, which quickly deals with a failure in a node or a link comprising a ~~multi-point-to-point~~ multipoint-to-point label switched path (LSP) installed in Internet introducing the MPLS.

Please amend the paragraph beginning at page 3, line 1 to read as follows.

Referring to FIG. 1, when a failure occurs between a LSR5 and a LSR7, a traffic stream is loop-backed in the LSR5 to be sent to a source node (ingress LSR1) as marked with the dotted line, which in turn transfers the traffic stream to an ER-LSP (LSR1?LSR2?LSR4?LSR6? LSR7) set between a source LSR and a destination LSR, namely a LSR1 and a LSR7 so as not to overlap the protected LSP each other, thereby minimizing the packet loss and protecting the ~~point-to-point~~ point-to-point LSP.

Please amend the paragraph beginning at page 3, line 8 to read as follows.

However, the ~~point-to-point~~ point-to-point LSP protection method devised by Haskin has not suggested a process of protecting a ~~multi-point-to-point~~ multipoint-to-point LSP.

Please amend the paragraph beginning at page 3, line 15 to read as follows.

In other words, the LSR performs a label merging function, through which one ~~multi-point-to-point~~ multipoint-to-point LSP can be generated in most cases with respect to one FEC in the MPLS domain, with the exception of some cases including an ATM LSR, which does not support the merging.

Please amend the paragraph beginning at page 3, line 19 to read as follows.

Such ~~multi-point to point~~ multipoint-to-point LSP protection method was suggested in "A Path Protection/Restoration Mechanism for MPLS Networks" by C. Huang, et al. The method is characterized by transferring a fault indication signal (FIS) through a reverse tree of the LSP to notify the failure to a path switching LSR (PSL) of an upstream, if a failure occurs in a link or a node of the ~~multi-point to point~~ multipoint-to-point LSP. Here, the label merging LSR transfers the FIS in the upward direction. The PSL receiving the FIS transfers the corresponding traffic stream through the backup LSP to a path merging LSP (PML) in order to deal with a failure in a LSP of a downstream.

Please amend the paragraph beginning at page 4, line 3 to read as follows.

FIG. 2 is a diagram illustrating the ~~multi-point to point~~ multipoint-to-point LSP protection method suggested by C. Huang. An arrow marked with a thin line in FIG. 2 signifies the protected ~~multi-point to point~~ multipoint-to-point LSP between the PSL and the PML, and an arrow marked with a dotted line signifies the traffic flow after the FIS notification.

Please amend the paragraph beginning at page 4, line 8 to read as follows.

Referring to FIG. 2, when a failure occurs in a link between the LSR4 and the LSR6, the LSR4 senses the failure and transfers the FIS to the LSR3. The label merging LSR3 receiving the FIS transfers the FIS in the link between the LSR2 and the LSR9. Then, the final PSL (LSR1, LSR9) receiving the FIS switches the corresponding traffic stream to the backup LSP (LSR1?LSR5?LSR11?LSR6?LSR7, LSR9?LSR10?LSR7) to perform the ~~multi-point to point~~ multipoint-to-point LSP protection.

Please amend the paragraph beginning at page 4, line 19 to read as follows.

Therefore, a more efficient mechanism for the ~~multi-point-to-point~~ multipoint-to-point LSP protection and recovery is under need.

Please amend the paragraph beginning at page 4, line 23 to read as follows.

It is, therefore, an object of the present invention to provide a method for high speed rerouting in a MPLS network, which can minimize a packet loss and enable a fast rerouting of a traffic so as to protect and recover a ~~multi-point-to-point~~ multipoint-to-point LSP occupying most LSPs in the MPLS network.

Please amend the paragraph beginning at page 5, line 2 to read as follows.

To achieve the above object, there is provided a method for high speed rerouting in a multi protocol label switching (MPLS) network, the method comprising the steps of controlling a traffic stream to flow in a reverse direction in a point where node or link failure occurs by using a backup Label Switched Path (LSP) comprising an Explicitly Routed (ER) LSP having a reverse tree of a protected ~~multi-point-to-point~~ multipoint-to-point LSP and an ingress LSR through an egress LSR.

Please amend the paragraph beginning at page 5, line 8 to read as follows.

Also, there is provided a method for high speed rerouting in a multi protocol label switching (MPLS) network, comprising the steps of setting a backup Label Switched Path (LSP) comprising a ~~point-to-multi-point~~ point-to-multipoint reverse anycast tree reaching an ingress Labsel Switching Router (LSR) with an egress LSR of a ~~multi-point-to-point~~ multipoint-to-point LSP performing as a root; and transferring, at a LSR sensed a failure, a traffic stream through the reverse anycast tree by loop-backing the traffic stream in a reverse direction, when the failure occurs in one link in the MPLS network.

Please amend the paragraph beginning at page 5, line 23 to read as follows.

FIG. 2 is a diagram illustrating a process of protecting a ~~multi-point-to-point~~ multipoint-to-point LSP according to the conventional art;

Please amend the paragraph beginning at page 5, line 25 to read as follows.

FIG. 3 is a diagram illustrating a protected ~~multi-point-to-point~~ multipoint-to-point LSP and a backup LSP according to the present invention;

Please amend the paragraph beginning at page 6, line 12 to read as follows.

First, a backup LSP is pre-set to perform a fast rerouting of a ~~multi-point-to-point~~ multipoint-to-point LSP in a MPLS network according to the present invention. That is to say, the backup LSP is pre-established to minimize a packet loss in case of a failure.

Please amend the paragraph beginning at page 6, line 15 to read as follows.

Here, the backup LSP comprises two path segments. A first path segment includes a ~~multi-point-to-point~~ multipoint-to-point reverse anycast tree reaching an ingress LSR in a reversely upward direction along a link of a ~~multi-point-to-point~~ multipoint-to-point LSP with an egress LSR of the protected ~~multi-point-to-point~~ multipoint-to-point LSP as a root. A second path segment of the backup LSP is an ER-LSP occupying from the ingress LSR to an egress LSR without containing the link of the protected ~~multi-point-to-point~~ multipoint-to-point LSP.

Please amend the paragraph beginning at page 6, line 21 to read as follows.

FIG. 3 is a diagram illustrating the protected ~~multi-point-to-point~~ multipoint-to-point LSP and the backup LSP in the MPLS network. A packet transferred to the anycast tree in FIG. 3 is

transferred to only one side in a break point, in contrast to a packet transferred to a multicast tree so that the packet transferred by the root is transferred to one point of several leaf nodes.

Please amend the paragraph beginning at page 7, line 21 to read as follows.

In the meantime, the fast rerouting method for the ~~multi-point-to-point~~ multipoint-to-point LSP protection has a disadvantage that the loop-backed traffic fails to accurately seek its transfer path and ends to miss when there simultaneously generate multi failures in the plurality links.

Please amend the paragraph beginning at page 8, line 10 to read as follows.

Thus, a control message is needed to make the fast rerouting for the ~~multi-point-to-point~~ multipoint-to-point LSP to perform a normal operation as described in FIG. 4. The LSR3 sensing that all the links, viz. the LSR2-LSR3, and LSR10-LSR3 are suffering the failure transfers the FIS message in a downward direction as shown in FIG. 5. The LSR4 receiving the FIS transfers the loop-backed message toward the LSR13, so as to perform the fast rerouting in the plurality of links.

Please amend the paragraph beginning at page 8, line 21 to read as follows.

As stated above, the present invention has advantages of enabling the fast rerouting of the traffic and minimizing the packet loss for the ~~multi-point-to-point~~ multipoint-to-point LSP protection and recovery, accordingly improving the reliability on the MPLS network.